

REGIONAL REFERENCE LABORATORY FOR ANIMAL DISEASE DIAGNOSIS

(IVC/5/024) D3 New

MODEL PROJECT

CORE FINANCING

YEAR	Experts		Group Activity	Equipment	Fellowships		Scientific Visits		Group Training	Sub-Contracts	Misc. Comp.	TOTAL
	m/d	US \$	US \$	US \$	m/d	US \$	m/d	US \$	US \$	US \$	US \$	US \$
1997	1/0	13,200	0	70,000	4/0	12,600	0/15	4,800	0	0	0	100,600
1998	1/0	13,950	0	30,000	3/0	9,900	0/0	0	0	0	0	53,850
1999	1/0	14,700	0	20,000	6/0	20,700	0/0	0	0	0	0	55,400

First Year Approved: 1997

OBJECTIVES: This project contributes to reaching the regional development objective of moving Africa along an internationally sanctioned and financed pathway leading to the eradication of rinderpest on the continent. In so doing, the project will also contribute to technology transfer and capacity building that will promote more cost effective control of other important livestock diseases. The specific objectives are (1) to introduce the regular practice of molecular detection techniques for the differential diagnosis of rinderpest and related diseases, and (2) to establish a fully functional and internationally accepted regional reference laboratory for the application of these techniques in the campaign to eradicate rinderpest from Africa.

BACKGROUND: In West Africa agriculture is the most important sector in national and regional economies. It provides about one third of the gross domestic product (GDP) and employs two-thirds of the working population. Although livestock production in Côte d'Ivoire is practiced on a small scale, it provides food and income to a large fraction of the rural population. The main constraints to efficient livestock production are parasitic diseases such as trypanosomiasis, and epidemic diseases such as rinderpest, contagious bovine pleuropneumonia, and peste des petits ruminants (PPR). All pose region-wide threats. Unless controlled, they make investments in livestock risky, inhibit trade, and hamper the development of integrated crop-livestock systems. During a recent Pan African Rinderpest Campaign (PARC) meeting of West African countries, many announced provisional freedom from rinderpest. The next step, sanctioned by Organization International des Epizootics (OIE), is to stop vaccination, and enter into an intensive surveillance phase to confirm eradication of the virus. The region's nomadic livestock production system involves several countries sharing the same livestock populations. No West African country is likely to stop vaccination unless it appears that rinderpest is absent throughout the region. Thus, close collaboration between the countries concerned is obligatory, as is complete confidence in the veterinary services of the region. Once vaccination ceases, outbreaks of rinderpest must be diagnosed rapidly and reliably to prevent an epidemic. Confirmed diagnosis must occur at three different levels. At the field level, diagnosis relies on clinical signs; at the national level, classical immunoassay diagnostic techniques (ELISA) are the method of choice; at the regional level, these two methods require confirmation by a more sensitive technique, the polymerase chain reaction (PCR). Under the project IVC/5/021, the Agency assisted the Laboratory for Animal Pathology (LAP), Bingerville, to establish a capability for serosurveillance and diagnosis, using ELISA techniques. The LAP now has an infrastructure for disease diagnosis and control at the national level. It intends to enhance its analytical capability by introducing PCR at the regional level and to use antigen detection techniques in order to achieve systematic control of major animal diseases. The LAP will function as a regional reference laboratory for diagnosis of rinderpest and PPR, and for the differential diagnosis of bovine viral diarrhoea (BVD), foot and mouth disease, malignant catarrhal fever (MCF) and infectious bovine rhinotracheitis (IBR). The laboratory will provide diagnostic services for the differential diagnosis of rinderpest and PPR to other countries of the region including Benin, Bissau, Burkina Faso, Central African Republic, Chad, Gambia, Ghana, Guinea, Mali, Mauritania, Niger, Senegal, Sierra Leone and Togo. Procedures to facilitate communication and sample submission from across the region are crucial to the success of the regional reference laboratory.

PROJECT PLAN: The project aim is to establish routine use of molecular techniques, including RNA, DNA extraction, cDNA synthesis, PCR, hybridization and Southern blotting. Expert missions during the first eighteen months of the project will introduce these techniques for BVD, IBR and MCF. During the first two years, two staff members of the LAP will receive additional training abroad. Project activities will include (i) collaboration with the World Reference Laboratory for Rinderpest (UK) and the CIRAD/EMVT (France); (ii) promulgation of guidelines for sample collection and dispatch; (iii) strengthening links and improving communication among diagnostic laboratories in the region; and (iv) co-ordination between the national veterinary services and diagnostic laboratories. The project will link these activities with an FAO/IAEA Co-ordinated Research Programme (CRP) on the Seromonitoring of Rinderpest in Africa (Phase III). The European Union has funded the CRP for two years with an option for extension. This project is also a key element in the regional strategy for rinderpest eradication embodied in the Model Project RAF/1997/018, Assistance to Complete Eradication of Rinderpest from Africa. The second half of the second year and the entire third year of the project will see outputs including consolidation of the technology and its expansion to other diseases. Experts will provide technical backstopping as the capacity of the laboratory and the scope of its work expands. The equipment component involves primarily the supply of specialized diagnostic reagents.

NATIONAL COMMITMENT: The Government will provide three qualified scientists and support staff, a well equipped laboratory for routine diagnosis of major animal diseases; renovation of premises as required; transport for field activities; and associated operating costs.

AGENCY INPUT: The Agency's inputs will include; (i) expert advice on molecular techniques; (ii) assistance in diagnosis of rinderpest and PPR, and in the differential diagnosis of morbilliviruses; (iii) PCR equipment, reagents and consumables; and (iv) training in molecular techniques, diagnosis and differential diagnosis of rinderpest and PPR.

PROJECT IMPACT: The Central Laboratory for Animal Pathology will serve as a reference laboratory offering services to the other countries of the region. In this way, the project will contribute significantly to the eradication of rinderpest from West Africa. A number of countries will soon make the Office International des Epizootics declaration of freedom from rinderpest. Significant savings in vaccination costs will result. A reliable assessment of the incidence of rinderpest and other animal diseases will lead to improved disease control programmes, to